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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,343

01/03/2006

Atsuo Watanabe

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03/10/2009

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EXAMINER

AUJLA, DHANVIR K

ART UNIT

PAPER NUMBER

4115

MAIL DATE

DELIVERY MODE

03/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,343	<b>Applicant(s)</b> WATANABE ET AL.	
	<b>Examiner</b> DHANVIR AUJLA	<b>Art Unit</b> 4115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/3/2006, 9/18/2006, 7/23/2007</u> .                          | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 4115

### **DETAILED ACTION**

1. In response to the Preliminary Amendment filed on January 3, 2006, claims 1-13 have been canceled and the newly added claims 14-26 are pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 4115

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 14-16, 20, 21 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US Pat. No. 5,836,860) in view of Fukuyama et al. (US Pat. No. 3,673,025).

Regarding claim 14, Watanabe et al. broadly discloses a manufacturing method of a resin roll comprising a step of forming a lower winding layer comprising a fiber-reinforced resin on an outer periphery of a roll core (column 6, lines 3-7), a step of forming an outer sleeve comprising a synthetic resin on an outer periphery of the lower winding layer column 9, lines 58-66), where the step of forming the lower winding layer comprises a step of transferring a tape-shaped non-woven fiber aggregate in which a fiber material mainly comprising inorganic fibers is coupled with a binder in a predetermined direction so as to be wound around the outer periphery of the roll core (column 6, lines 37-51). It is noted that Watanabe et al. does not specifically disclose a step of impregnating the non-woven fiber aggregate with a liquid thermosetting resin while the non-woven fiber aggregate is being transferred. However, Fig. 1 of Fukuyama et al. teaches a step of impregnating the non-woven fiber aggregate with a liquid thermosetting resin while the non-woven fiber aggregate is being transferred (column 5, lines 20-24). Hence, it would have been obvious at the time the invention was made to combine the references of Watanabe et al. with Fukuyama et al. as the step of impregnating the roll with thermosetting resin is a step that can be done in advanced, and does not necessarily need to be done as the roll is formed (column

Art Unit: 4115

3, lines 21-24), furthermore, the process of dipping a glass fiber into a resin solution is old and well known.

Regarding claim 15, Watanabe et al. broadly discloses that the lower winding layer has a laminated structure comprising an inner layer and an outer layer (column 6, lines 37-44), where the step of forming the lower winding layer comprises a step of forming the inner layer of the lower winding layer on the outer periphery of the roll core (column 6, lines 5-7), and a step of forming the outer layer on the inner layer on the roll core, and the outer layer is the non-woven fiber aggregate impregnated with the thermosetting resin (column 6, lines 37-44).

Regarding claim 16, Watanabe et al. broadly discloses that the inner layer comprises a layer in which a thread, a roving or a cloth tape comprising inorganic fibers or organic fibers is impregnated with a liquid thermosetting resin and wound around the roll core (column 6, lines 6-22).

Regarding claim 20, Watanabe et al. broadly discloses that the fiber material comprises glass fibers (column 6, lines 45-51).

Regarding claim 21, Watanabe et al. broadly discloses that the non-woven fiber aggregate is a non-woven fabric or a paper formed of the fiber material (column 6, lines 37-51).

Regarding claim 24, Watanabe et al. broadly discloses that an inorganic filler is mixed to the thermosetting resin (column 6, lines 28-31).

Regarding claim 25, Watanabe et al. broadly discloses that the outer sleeve is formed on the lower winding layer through an adhesive layer (column 10, lines 8-14).

Regarding claim 26, Watanabe et al. broadly discloses that the outer sleeve is formed directly on the lower winding layer without an adhesive layer (column 11, lines 31-40).

5. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US Pat No. 5,836,860) in view of Fukuyama et al. (US Pat No. 3,673,025) and further in view of Mitsuyoshi (Japanese Patent No. JP51-016368).

Regarding claim 17, Watanabe et al. broadly discloses the step of forming the lower winding layer (column 6, lines 3-7). It is noted that the teachings of Watanabe et al. and Fukuyama et al. do not specifically disclose lowering viscosity of the thermosetting resin material after the non-woven fiber aggregate is impregnated with the liquid thermosetting resin. However, Mitsuyoshi teaches lowering viscosity of the thermosetting resin material after the non-woven fiber aggregate is impregnated with the liquid thermosetting resin (i.e. as the rolls are heated, the viscosity of the thermosetting resin material is lowered from this heat, Pg. 3). Hence, it would have been obvious at the time the invention was made to combine the teachings of Watanabe et al. and Fukuyama et al. with Mitsuyoshi, as the sheet material disclosed in Mitsuyoshi is also being impregnated upon transfer similar to that disclosed in Fukuyama et al, furthermore, the viscosity of the material is lowered in both Fukuyama et al. and Mitsuyoshi et al, Mitsuyoshi by heated rollers, and Fukuyama et al. by a heating process ( i.e. as it is well known the applying heat lowers the viscosity of thermosetting resin; Fukuyama: column 3, lines 27-29).

Regarding claim 18, it is noted that the teachings of Watanabe et al. and Fukuyama et al. do not specifically disclose the viscosity of the thermosetting resin is lowered while the non-woven fiber aggregate is being transferred. However, Mitsuyoshi teaches the viscosity of the thermosetting resin is lowered while the non-woven fiber aggregate is being transferred (i.e. as

Art Unit: 4115

the rolls are heated, the viscosity of the thermosetting resin material is lowered from this heat while the material is transferred, Pg. 3). Hence, it would have been obvious at the time the invention was made to combine the teachings of Watanabe et al. and Fukuyama et al. with Mitsuyoshi, as the sheet material disclosed in Mitsuyoshi is also being impregnated upon transfer similar to that disclosed in Fukuyama et al, furthermore, the viscosity of the material is lowered in both Fukuyama et al. and Mitsuyoshi et al, Mitsuyoshi by heated rollers, and Fukuyama et al. by a heating process ( i.e. as it is well known the applying heat lowers the viscosity of thermosetting resin; Fukuyama: column 3, lines 27-29).

Regarding claim 19, it is noted that the teachings of Watanabe et al. and Fukuyama et al. do not specifically disclose the viscosity of the thermosetting resin is lowered while the non-woven fiber aggregate is being wound around the roll core. However, Mitsuyoshi teaches the viscosity of the thermosetting resin is lowered while the non-woven fiber aggregate is being wound around the roll core (i.e. as the rolls are heated, the viscosity of the thermosetting resin material is lowered from this heat while it's being wound around the core, Pg. 3). Hence, it would have been obvious at the time the invention was made to combine the teachings of Watanabe et al. and Fukuyama et al. with Mitsuyoshi, as the sheet material disclosed in Mitsuyoshi is also being impregnated upon transfer similar to that disclosed in Fukuyama et al, furthermore, the viscosity of the material is lowered in both Fukuyama et al. and Mitsuyoshi et al, Mitsuyoshi by heated rollers, and Fukuyama et al. by a heating process ( i.e. as it is well known the applying heat lowers the viscosity of thermosetting resin; Fukuyama: column 3, lines 27-29).

Art Unit: 4115

6. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US Pat No. 5,836,860) in view of Fukuyama et al. (US Pat No. 3,673,025) and further in view Zafiroglu (World Pub. No. WO 94/19523).

Regarding claim 22, it is noted that the teachings of Watanabe et al. and Fukuyama et al. do not specifically disclose the non-woven fiber aggregate has a length-direction tensile strength of 50N/15mm or more. However, Zafiroglu teaches the non- woven fiber aggregate has a length-direction tensile strength of 50N/15mm or more (i.e. the material stretched by 15% showing that it passed the elastic region, the data can be manipulated to obtain the yield strength of the material which is a form of tensile strength; Pg. 8, lines 18-25). Hence, it would have been obvious at the time the invention was made to combine the teachings of Watanabe et al. and Fukuyama et al. with Zafiroglu, as the limitation for the tensile strength is a design choice, and is inherent that the resin material has some form of tensile strength.

Regarding claim 23, it is noted that the teachings of Watanabe et al. and Fukuyama et al. do not specifically disclose the non-woven fiber aggregate has a basic weight of 30g/m<sup>2</sup> to 100g/m<sup>2</sup>. However, Zafiroglu teaches the non- woven fiber aggregate has a basic weight of 30g/m<sup>2</sup> to 100g/m<sup>2</sup> (Pg. 3, lines 17-18). Hence, it would have been obvious at the time the invention was made to combine the teachings of Watanabe et al. and Fukuyama et al. with Zafiroglu, as the limitation for the weight is a design choice, and it is obvious that the resin material has some form of weight.

### ***Conclusion***

Art Unit: 4115

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe et al. (US Pat No. 6,030,328) and Tadokoro et al. (US Pat No. 4,466,164) as they pertain to other calendar rolls.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHANVIR AUJLA whose telephone number is (571)270-7842. The examiner can normally be reached on Monday thru Thursday, 7:30a.m til 5:00 p.m. alternative Fridays, BT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheng Joe can be reached on (571)272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DHANVIR AUJLA/  
Examiner, Art Unit 4115  
2/2/2009

/Joe H Cheng/  
Supervisory Patent Examiner  
Art Unit 4115

Application/Control Number: 10/563,343

Page 9

Art Unit: 4115